

**Chapter 2 Properties of Matter****Section 2.2 Physical Properties****(pages 45–51)**

*This section discusses physical properties and physical changes. It also explains how physical properties can be used to identify materials, select materials, and separate mixtures.*

**Reading Strategy (page 45)**

**Building Vocabulary** As you read, write a definition for each term in the table below. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

Defining Physical Properties	
Physical Property	Definition
Viscosity	
Malleability	
Melting Point	

**Examples of Physical Properties (pages 45–47)**

1. A physical property is any characteristic of a material that can be observed or measured without changing the \_\_\_\_\_ of the substances in the material.
2. Explain why a wooden spoon is a better choice than a metal spoon for stirring a boiling pot of soup. \_\_\_\_\_  
\_\_\_\_\_
3. Is the following sentence true or false? A liquid with a high viscosity flows more slowly than a liquid with a low viscosity at the same temperature. \_\_\_\_\_
4. Is the following sentence true or false? Discovering which of two materials can scratch the other is a way to compare the hardness of the materials. \_\_\_\_\_

*Match each term to its definition.*

Term	Definition
_____ 5. viscosity	a. The ability of a solid to be hammered without shattering
_____ 6. conductivity	b. The temperature at which a substance changes from a liquid to a gas
_____ 7. malleability	c. The resistance of a liquid to flowing
_____ 8. melting point	d. The ability to allow heat to flow
_____ 9. boiling point	e. The ratio of the mass of a substance to its volume
_____ 10. density	f. The temperature at which a substance changes from a solid to a liquid

**Chapter 2 Properties of Matter**

11. Which of the substances in the table below are gases at room temperature?

a. \_\_\_\_\_ b. \_\_\_\_\_ c. \_\_\_\_\_

Melting and Boiling Points of Some Substances		
Substance	Melting Point	Boiling Point
Hydrogen	−259.3°C	−252.9°C
Nitrogen	−210.0°C	−195.8°C
Ammonia	−77.7°C	−33.3°C
Octane (found in gasoline)	−56.8°C	125.6°C
Water	0.0°C	100.0°C
Acetic acid (found in vinegar)	16.6°C	117.9°C

**Using Physical Properties (page 48)**

12. Describe three steps that can be used to identify a material. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

13. Is the following sentence true or false? Usually, people consider only one property when choosing a material. \_\_\_\_\_

**Using Properties to Separate Mixtures (page 50)**

14. Two processes that are commonly used to separate mixtures are \_\_\_\_\_ and \_\_\_\_\_.

15. Explain how filtration separates materials based on the size of their particles.

\_\_\_\_\_

\_\_\_\_\_

16. Explain why distillation works for converting seawater into fresh water.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Recognizing Physical Changes (page 51)**

17. Is the following sentence true or false? In a physical change, some of the substances in a material change, but the properties of the material stay the same. \_\_\_\_\_

18. Explain why the boiling of water is a physical change. \_\_\_\_\_

\_\_\_\_\_

19. Circle the letter for each process that is a reversible physical change.

- a. wrinkling a shirt                      b. freezing water  
c. cutting hair                              d. peeling an orange